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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,113	12/19/2001	Jaime E. Ramirez-Vick	25527-0001 C1	2617

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EXAMINER
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KIM, YOUNG J

ART UNIT	PAPER NUMBER
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1637

DATE MAILED: 05/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/029,113

**Applicant(s)**

RAMIREZ-VICK, JAIME E.

**Examiner**

Young J. Kim

**Art Unit**

1637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/28/05</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This Office Action is responsive to the Amendment received on February 10, 2005.

#### ***Preliminary Remark***

Cancellation of claims 22-24 is acknowledged.

Claims 1-21 are pending and are under prosecution therefore.

Terminal Disclaimer received on February 10, 2005 have been accepted.

#### ***Information Disclosure Statement***

The IDS received on March 28, 2005 is acknowledged.

A signed copy of PTO-1449 is attached hereto.

#### ***Claim Rejections - 35 USC § 112***

The rejection of claims 1 and 5 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter, made in the Office Action mailed on December 14, 2004 is withdrawn in view of the Amendment received on February 10, 2005.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite for reciting the phrase, "a heterobifunctional spacer having at least two functional groups, said functional groups including a soft base...wherein said soft base is selected from the group consisting of succinimidyl-6-(biotinamido)hexanoate and iodoacetyl,"

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because when claims are read in light of the specification, from the two functional groups, one of said functional group is a soft base while the other group being, “reactive towards the ligands or biomolecules to be immobilized,” wherein such functional groups are listed in Table 2 (page 10, lines 6-8). The claim presently reads on a heterobifunctional spacer having at least two functional groups, both of the said functional groups being selected from the category of a soft base. This interpretation is assumed for the purpose of prosecution.

Claims 2-13 are indefinite by way of their dependency on claim 1.

Claim 11 is indefinite for reciting the phrase, “[a] surface of claim 1 further comprising an oligonucleotide,” because it is unclear how the oligonucleotide is further comprised in the surface, such as whether said oligonucleotide is bonded to the heterobifunctional spacer or a soft metal solid support, etc.

Claim 14 is indefinite for reciting the phrase, “a heterobifunctional spacer having at least two functional groups, said functional groups including a soft base and an N-hydroxy succinimide ester,” because it is unclear whether the heterobifunctional spacer comprises two functional groups from the category of a soft base; or from one of each – one from the soft base category and the other from N-hydroxy succinimide esters.

The former interpretation is assumed when read in light of the specification as discussed above.

Claims 15-16, 20, and 21 are indefinite by way of their dependency on claim 14.

Claim 17 is indefinite for reciting the phrase, a heterobifunctional spacer on said solid support via soft metal-soft base bonding, said spacer having at least two functional groups, said functional groups including a soft base and an N-hydroxy succinimide ester,” because it is

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unclear whether the heterobifunctional spacer comprises two functional groups from the category of a soft base; or from one of each – one from the soft base category and the other from N-hydroxy succinimide esters.

The former interpretation is assumed when read in light of the specification as discussed above.

Claims 18 and 19 are indefinite by way of their dependency on claim 17.

### ***Claim Rejections - 35 USC § 102***

The rejection of claims 14-21 under 35 U.S.C. 102(b) as being anticipated by Eigler et al. (U.S. Patent No. 5,077,210, issued December 31, 1991), made in the Office Action mailed on December 14, 2004 is withdrawn in view of the Amendment received on February 10, 2005, amending the claims to become drawn to non-covalent attachment of the heterobifunctional spacers to a solid substrate of soft metal.

### ***Necessitated by Amendment***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

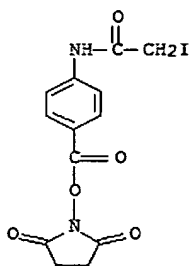
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5-7, 9-11, and 14-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Siiman et al. (U.S. Patent No. 5,248,772, September 28, 1993).

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Siiman et al. disclose a substrate and method of producing a substrate coated with gold particles, (thus soft metal), wherein said substrate comprises a heterobifunctional spacer having a soft base, wherein one of the listed soft bases is N-succinimidyl-(4-iodoacetyl-)aminobenzoate (also known as SIAB) (column 5, lines 7-16), thereby anticipating claims 1-2, 5-6, 14-15, and 17-18.

The structure of the above soft base is reproduced:



With regard to claims 3, 7, 16, and 19, the structure comprises about 10 carbon atoms.

With regard to claims 9 and 20, the term, "assay system," does not have any patentable weight so long as the artisans disclose substrate comprising multiple sites wherein the heterobifunctional agent of Siiman et al. is present.

With regard to claims 10, 11, and 17, the presence of biological samples is conducted with the solid substrate of Siiman et al. (column 14, lines 3-7).

Therefore, Siiman et al. anticipates the invention as claimed.

Claims 14-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Tarlov et al. (U.S. Patent No. 5,942,397, issued August 24, 1999, filed December 10, 1997).

Tarlov et al. disclose a method of immobilizing biopolymers of solid surface comprising a gold substrate (column 3, line 21), or substrates that are metal such as silver, copper, platinum, palladium, ruthenium, and iridium (column 3, lines 22-23), wherein said substrate comprises an organic linker which comprises an RSH functional group (column 44-46), wherein said organic

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linker comprises alkyl groups acting as a spacer, with an embodiment drawn to a hexamethylene linker which is about 10 carbon atoms in length, thereby anticipating claims 14-20.

With regard to claim 21, Tarlov et al. disclose that the solid surface is employed in hybridization-based detection (column 1, lines 11-18), which involves immobilized oligonucleotides (Figure 4B; column 3, lines 51-54).

Therefore, Tarlov et al. anticipate the invention as claimed.

### ***Double Patenting***

The provisional rejection of claims 1-11 and 14-21 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of copending Application No. 10/333,697, made in the Office Action mailed on December 14, 2004 is withdrawn in view of a properly filed Terminal Disclaimer received with the Amendment received on February 10, 2005.

### ***Conclusion***

No claims are allowed.

### ***Inquiries***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Young J. Kim whose telephone number is (571) 272-0785. The Examiner is on flex-time schedule and can best be reached from 8:30 a.m. to 4:30 p.m. The Examiner can also be reached via e-mail to [Young.Kim@uspto.gov](mailto:Young.Kim@uspto.gov). However, the office cannot

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guarantee security through the e-mail system nor should official papers be transmitted through this route.

If attempts to reach the Examiner by telephone are unsuccessful, the Primary Examiner in charge of the prosecution, Dr. Kenneth Horlick, can be reached at (571) 272-0784. If the attempts to reach the above Examiners are unsuccessful, the Examiner's supervisor, Dr. Gary Benzion, can be reached at (571) 272-0782.

Papers related to this application may be submitted to Art Unit 1637 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 CFR 1.6(d)). NOTE: If applicant does submit a paper by FAX, the original copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED, so as to avoid the processing of duplicate papers in the Office. All official documents must be sent to the Official Tech Center Fax number: (571) 273-8300. For Unofficial documents, faxes can be sent directly to the Examiner at (571) 273-0785. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-1600.



Young J. Kim  
Patent Examiner  
Art Unit 1637  
5/18/2005

**YOUNG J. KIM**  
**PATENT EXAMINER**

yjk